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MANELLI DENISON & SELTER
2000 M STREET NW SUITE 700
WASHINGTON, DC 20036-3307

EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2665	18

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/496,212	VISWANATH ET AL.
	Examiner	Art Unit
	Daniel J. Ryman	2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment B filed 4/26/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-3 and 5-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 9 recites the limitation "the fetching step" in line 3. There is insufficient antecedent basis for this limitation in the claim. For the purposes of prior art rejections, Examiner will interpret claim 9 to depend on claim 8 rather than claim 7.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger (USPN 5,949,786) in view of Newton (Newton, Harry. Newton's Telecom Dictionary. 18th ed. Pg. 414: "Key").

7. Regarding claim 1, Bellenger discloses a method in a network switch of searching for a selected layer 3 switching entry for a received data packet (col. 1, lines 20-35 and col. 2, line 42-col. 3, line 32), the method comprising: generating first and second hash codes (specific bytes from a particular field) according to a prescribed hash function in response to first and second layer 3 information (IP source and IP destination) within the received data packet, respectively (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); combining the first and second hash codes according to a prescribed combination into a signature (hash value) for the received data packet (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); and searching a table, configured for storing layer 3 signatures that index respective layer 3 switching entries according to the prescribed hash function and the prescribed combination, for the selected layer 3 switching entry based on a match between the corresponding layer 3 signature and the signature for the received data packet (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36). Bellenger does not expressly disclose that the first and second hash codes are hash keys; however, Bellenger does disclose generating the signature by combining hash codes from a plurality of fields (col. 6, lines 34-49). Bellenger also discloses that other hash functions may be used (col. 6, lines 1-20). Newton teaches that a "key" is defined as "one or more characters or perhaps a field within a data record used to identify the data and perhaps control its use". Thus, as broadly defined, each hash code is a hash key since the hash code is "one or more characters...within a data record used to identify the data". Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that the

hash codes are hash keys since the hash codes comprise one or more characters within a data record used to identify the data.

8. Regarding claim 5, referring to claim 1, Bellenger in view of Newton discloses verifying whether the selected layer 3 switching entry matches the received data packet (Bellenger: col. 5, lines 20-28 and col. 8, lines 24-30).

9. Regarding claim 6, referring to claim 5, Bellenger in view of Newton does not expressly disclose that the verifying step includes: fetching the first and second layer 3 information from the selected layer 3 switching entry; and determining whether the first and second layer 3 information from the selected layer 3, switching entry matches the first and second layer 3 information within the received data packet; however, Bellenger in view of Newton does suggest that if a packet is matched to an incorrect entry then the packet would be misrouted (Bellenger: col. 3, lines 9-14). Examiner takes official notice that it is well known in the art to verify a hashing entry by a comparison of the values used to generate the hash key in the received packet and the entry. It would have been obvious to one of ordinary skill in the art at the time of the invention to fetch the first and second layer 3 information from the selected layer 3 switching entry; and to determine whether the first and second layer 3 information from the selected layer 3, switching entry matches the first and second layer 3 information within the received data packet in order to ensure that the packet is matched to the correct entry.

10. Regarding claim 7, referring to claim 1, Bellenger in view of Newton discloses detecting a group of the layer 3 switching entries, each having a corresponding layer 3 signature that matches the signature for the received data packet; and verifying one entry from the group of the

layer 3 switching entries matches the received data packet (Bellenger: col. 2, lines 51-59 and col. 8, lines 23-36).

11. Regarding claim 8, referring to claim 7, Bellenger in view of Newton does not expressly disclose that the verifying step includes: fetching the first and second layer 3 information for each of the entries of the group of layer 3 switching entries; and identifying the one entry having the corresponding first and second layer 3 information that matches the first and second layer 3 information within the received data packet; however, Bellenger in view of Newton does suggest that if a packet is matched to an incorrect entry then the packet would be misrouted (Bellenger: col. 3, lines 9-14). Examiner takes official notice that it is well known in the art to verify a hashing entry by a comparison of the values used to generate the hash key in the received packet and the entry. It would have been obvious to one of ordinary skill in the art at the time of the invention to fetch the first and second layer 3 information from the selected layer 3 switching entry; and to determine whether the first and second layer 3 information from the selected layer 3, switching entry matches the first and second layer 3 information within the received data packet in order to ensure that the packet is matched to the correct entry.

12. Claims 2, 3, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger (USPN 5,949,786) in view of Newton (Newton, Harry. Newton's Telecom Dictionary. 18th ed. Pg. 414: "Key") as applied to claim 1 above, and further in view of Schnell (USPN 5,757,795).

13. Regarding claim 2, referring to claim 1, Bellenger in view of Newton discloses that received data packet includes an Internet Protocol (IP) header (Bellenger: col. 6, lines 42-49). Bellenger in view of Newton does not expressly disclose that the generating step includes

detecting the first and second layer 3 information from the IP header as the data packet is received by a corresponding network switch port. Schnell teaches, in a system for hashing addresses in a network switch, detecting the fields in the packet as the data packet is received by the corresponding network switch port in order to perform the hashing at the port such that the system sorts addresses in an efficient manner (col. 2, lines 41-60 and col. 2, line 63-col. 3, line 28). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the generating step include detecting the first and second layer 3 information from the IP header as the data packet is received by a corresponding network switch port in order to have a system that sorts addresses in an efficient manner.

14. Regarding claim 3, referring to claim 2, Bellenger in view of Newton in further view of Schnell discloses that detecting step includes selecting at least two of an IP source address, an IP destination address, a Transmission Control Protocol (TCP) source port, a TCP destination port, a User Datagram Protocol (UDP) source port, and a UDP destination port as the first and second layer 3 information from the IP header based on elements of each of the layer 3 switching entries used to generate the corresponding layer 3 signature (Bellenger: col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36).

15. Regarding claim 10, referring to claim 1, Bellenger in view of Newton does not expressly disclose forwarding an identifier specifying the selected layer 3 switching entry from a network switch port, having received the received data packet, to layer 3 switching logic within the network switch since Bellenger in view of Newton does not have each port calculate the signature. Schnell teaches, in a system for hashing addresses in a network switch, detecting the fields in the packet as the data packet is received by the corresponding network switch port in

order to perform the hashing at the port such that the system sorts addresses in an efficient manner (col. 2, lines 41-60; col. 2, line 63-col. 3, line 28; and col. 8, lines 44-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to forward an identifier specifying the selected layer 3 switching entry from a network switch port, having received the received data packet, to layer 3 switching logic within the network switch in order to have a system that sorts addresses in an efficient manner.

16. Regarding claim 20, referring to claim 1, Bellenger in view of Newton discloses that the network switch is implemented on a single chip, the generating first and second hash keys, the combining the first and second hash keys, and the searching the table each being performed by the network switch (Bellenger: Fig. 2; col. 4, line 61-col. 5, line 15; and col. 9, lines 32-36). Bellenger in view of Newton does not expressly disclose that the table is implemented on a single chip. Schnell teaches, in a system for hashing addresses in a network switch, that a network switch can be implemented as several chips or a single, integrated chip (col. 8, lines 44-50). It is implicit that a single chip will occupy less space than several chips. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the table and the switch on a single chip in order to conserver space.

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger (USPN 5,949,786) in view of Newton (Newton, Harry. Newton's Telecom Dictionary. 18th ed. Pg. 414: "Key") as applied to claim 8 above, and further in view of Griesmer et al (USPN 5,555,405).

18. Regarding claim 9, referring to claim 8, Bellenger in view of Newton discloses that the network switch is an integrated circuit chip (Bellenger: Fig. 2; col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36), the searching

step including searching a table, and the fetching step including accessing the first and second layer 3 information from a policy table in a memory external to the integrated circuit chip (Bellenger: Fig. 2; col. 4, line 61-col. 5, line 15; and col. 9, lines 32-36). Bellenger in view of Newton does not expressly disclose the searching step including searching a signature table located on the integrated circuit chip. Griesmer teaches, in network node, searching a hash table to determine the memory address (pointer) of a forwarding entry in another table (col. 5, line 41-col. 6, line 4) in order to control the memories to reduce fragmentation (col. 3, lines 8-18). It would have been obvious to one of ordinary skill in the art at the time of the invention to search a signature table located on the integrated circuit chip in order to determine the address of an entry in the external memory such that the external memory can be controlled to reduce fragmentation.

19. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger (USPN 5,949,786) in view of Schnell (USPN 5,757,795).

20. Regarding claim 11, Bellenger discloses a method of identifying a layer 3 switching decision within an integrated network switch having a plurality of network switch ports and switching logic (col. 1, lines 20-35 and col. 2, line 42-col. 3, line 32), the method including: storing, in a first table, layer 3 switching entries that identify data packet types based on layer 3 information, respectively, each layer 3 switching entry identifying a corresponding layer 3 switching decision to be performed by the integrated network switch (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); generating an entry signature for each of the layer 3 switching entries based on a prescribed hash operation performed on first and second portions of the corresponding layer 3 information (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8,

lines 4-36); and identifying by the network switch port one of the layer 3 switching entries for switching of the received data packet based on detecting a match between the packet signature and the corresponding entry signature (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); wherein the integrated network switch is implemented on a single chip (Fig. 2; col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36). Bellenger does not expressly disclose generating a packet signature by a network switch port of the integrated network switch for a data packet received at the network switch port based on performing the prescribed hash operation on the first and second portions of the layer 3 information in the corresponding received data packet; however, Bellenger does disclose generating a packet signature by a network switch for a data packet received at the network switch port based on performing the prescribed hash operation on the first and second portions of the layer 3 information in the corresponding received data packet (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36). Schnell teaches, in a system for hashing addresses in a network switch, generating the hash value at the corresponding network switch port in order to have a system that sorts addresses in an efficient manner (col. 2, lines 41-60 and col. 2, line 63-col. 3, line 28). It would have been obvious to one of ordinary skill in the art at the time of the invention to generate a packet signature by a network switch port of the integrated network switch for a data packet received at the network switch port based on performing the prescribed hash operation on the first and second portions of the layer 3 information in the corresponding received data packet in order to have a system that sorts addresses in an efficient manner.

21. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger (USPN 5,949,786) in view of Schnell (USPN 5,757,795) as applied to claim 11 above, and further in view of Newton (Newton, Harry. Newton's Telecom Dictionary. 18th ed. Pg. 414: "Key").

22. Regarding claim 12, referring to claim 11, Bellenger in view of Schnell discloses that the step of generating an entry signature includes: selecting at least two of an IP source address, an IP destination address, a Transmission Control Protocol (TCP) source port, a TCP destination port, a User Datagram. Protocol (UDP) source port, and a UDP destination port as the first and second portions of the corresponding layer 3 information (Bellenger: col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36). Bellenger in view of Schnell does not expressly disclose generating first and second hash keys for the first and second portions of the corresponding layer 3 information in the layer 3 switching entry based on the prescribed hash operation; and combining the first and second hash keys to form the entry signature; however, Bellenger in view of Schnell does disclose generating the signature by combining hash codes from a plurality of fields (Bellenger: col. 6, lines 34-49). Bellenger in view of Schnell also discloses that other hash functions may be used (Bellenger: col. 6, lines 1-20). Newton teaches that a "key" is defined as "one or more characters or perhaps a field within a data record used to identify the data and perhaps control its use". Thus, as broadly defined, each hash code is a hash key since the hash code is "one or more characters...within a data record used to identify the data". Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that the hash codes are hash keys since the hash codes comprise one or more characters within a data record used to identify the data.

23. Regarding claim 13, referring to claim 12, Bellenger in view of Schnell in further view of Newton discloses that the step of generating a packet signature includes: selecting the at least two of an IP source address, an IP destination address, a Transmission Control Protocol (TCP) source port, a TCP destination port, a User Datagram Protocol (LTDP) source port, and a UDP destination port as the first and second portions of the corresponding layer 3 information in the received data packet (Bellenger: col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); generating third and fourth hash keys for the first and second portions of the corresponding layer 3 information in the received data packet based on the prescribed hash operation; and combining the third and fourth keys to form the packet signature (Bellenger: col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36 and Newton: definition of "key").

24. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger (USPN 5,949,786) in view of Schnell (USPN 5,757,795) as applied to claim 11 above, and further in view of Griesmer et al (USPN 5,555,405).

25. Regarding claim 14, referring to claim 11, Bellenger in view of Schnell discloses that the step of identifying one of the layer 3 switching entries includes: searching a table for one of the entry signatures matching the packet signature and accessing the one layer 3 switching entry from an external memory (Bellenger: Fig. 2; col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36). Bellenger in view of Schnell does not expressly disclose searching a signature table within the integrated network switch for one of the entry signatures matching the packet signature; retrieving from the signature table an address location of the one layer 3 switching entry corresponding to the matched entry signature; and

accessing the one layer 3 switching entry from an external memory based on the retrieved address location. Griesmer teaches, in network node, searching a hash table to determine the memory address (pointer) of a forwarding entry in another table (col. 5, line 41-col. 6, line 4) in order to control the memories to reduce fragmentation (col. 3, lines 8-18). It would have been obvious to one of ordinary skill in the art at the time of the invention to search a signature table within the integrated network switch for one of the entry signatures matching the packet signature; to retrieve from the signature table an address location (pointer) of the one layer 3 switching entry corresponding to the matched entry signature; and to access the one layer 3 switching entry from an external memory based on the retrieved address location in order to determine the address of an entry in the external memory in a manner that allows the external memory to be controlled to reduce fragmentation.

26. Regarding claim 15, referring to claim 14, Bellenger in view of Schnell in further view of Griesmer discloses that the step of identifying the one layer 3 switching entry includes verifying that the one layer 3 switching entry matches the received data packet (Bellenger: col. 5, lines 20-28 and col. 8, lines 24-30).

27. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger (USPN 5,949,786) in view of Newton (Newton, Harry. Newton's Telecom Dictionary. 18th ed. Pg. 414: "Key") in further view of Griesmer et al (USPN 5,555,405) in further view of Schnell (USPN 5,757,795).

28. Regarding claim 16, Bellenger discloses an integrated network switch configured for executing layer 3 switching decisions (col. 1, lines 20-35 and col. 2, line 42-col. 3, line 32), comprising: an index table that includes an entry signature representing a combination of

selected first and second portions of the corresponding layer 3 information hashed according to a prescribed hashing operation (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); a plurality of network switch ports (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); a frame identifier configured for obtaining the first and second portions of layer 3 information within a data packet received by the network switch port (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); and a flow module configured for generating a packet signature by generating first and second hash codes for the first and second portions from the data packet based on a prescribed hash operation (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36), the flow module identifying one of the layer 3 switching entries for execution of the corresponding layer 3 switching decision for the data packet based on a determined correlation between the packet signature and the corresponding entry signature (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); and layer 3 switching logic for executing the layer 3 switching decision for the data packet based on the corresponding identified one layer 3 switching entry (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36); wherein the integrated network switch is implemented on a single chip (col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36). Bellenger does not expressly disclose that the first and second hash codes are hash keys; however, Bellenger does disclose generating the signature by combining hash codes from a plurality of fields (col. 6, lines 34-49). Bellenger also discloses that other hash functions may be used (col. 6, lines 1-20).

Newton teaches that a "key" is defined as "one or more characters or perhaps a field within a data record used to identify the data and perhaps control its use". Thus, as broadly defined, each hash code is a hash key since the hash code is "one or more characters...within a data record used to identify the data". Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that the hash codes are hash keys since the hash codes comprise one or more characters within a data record used to identify the data. Bellenger in view of Netwon does not expressly disclose that the index table includes addresses of layer 3 switching entries that identify respective data packet types based on layer 3 information. Griesmer teaches, in network node, searching a hash table to determine the memory address (pointer) of a forwarding entry in another table (col. 5, line 41-col. 6, line 4) in order to control the memories to reduce fragmentation (col. 3, lines 8-18). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the index table include addresses of layer 3 switching entries that identify respective data packet types based on layer 3 information in order to determine the address of an entry in an additional memory in a manner that allows the additional memory to be controlled to reduce fragmentation. Bellenger in view of Newton in further view of Griesmer does not expressly disclose that each network switch port comprising a frame identifier and a flow module. Schnell teaches, in a system for hashing addresses in a network switch, detecting the fields in the packet as the data packet is received by the corresponding network switch port in order to perform the hashing at the port such that the system sorts addresses in an efficient manner (col. 2, lines 41-60; col. 2, line 63-col. 3, line 28; and col. 8, lines 44-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to have each network

switch port comprise a frame identifier and a flow module in order to have a system that sorts addresses in an efficient manner.

29. Regarding claim 17, referring to claim 16, Bellenger in view of Newton in further view of Griesmer in further view of Schnell discloses that the flow module, in response to determining the correlation between the packet signature and the entry signature, fetches selected portions of the layer 3 information from the one layer 3 switching entry (Bellenger: col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36). Bellenger in view of Newton in further view of Griesmer also discloses that the entry is verified (Bellenger: col. 5, lines 20-28 and col. 8, lines 24-30). Bellenger in view of Newton in further view of Griesmer does not expressly disclose that the selected portions of the layer 3 information are fetched from the one layer 3 switching entry for verification that the one layer 3 switching entry matches the data packet; however, Examiner takes official notice that it is well known in the art to verify a hashing entry by a comparison of the values used to generate the hash key in the received packet and the entry. It would have been obvious to one of ordinary skill in the art at the time of the invention to fetch the first and second layer 3 information from the selected layer 3 switching entry; and to determine whether the first and second layer 3 information from the selected layer 3, switching entry matches the first and second layer 3 information within the received data packet in order to ensure that the packet is matched to the correct entry.

30. Regarding claim 18, referring to claim 16, Bellenger in view of Newton in further view of Griesmer in further view of Schnell discloses that the frame identifier selects at least two of an IP source address, and IP destination address, a Transmission Control Protocol (TCP) source port, a TCP destination port, a User Datagram Protocol (LTDP) source port, and a UDP

destination port as the first and second portions of layer 3 information within the data packet (Bellenger: col. 3, lines 9-32; col. 4, lines 40-61; col. 5, line 17-col. 6, line 59, esp. col. 6, lines 34-49; and col. 8, lines 4-36).

31. Regarding claim 19, referring to claim 16, Bellenger in view of Newton in further view of Griesmer in further view of Schnell discloses an external memory interface configured for providing access by the flow module to the one layer 3 switching entry, stored in a memory external to the integrated network switch, based on the corresponding address entry (Bellenger: Fig. 2; col. 4, line 61-col. 5, line 15; and col. 9, lines 32-36 and Griesmer: col. 5, line 41-col. 6, line 4).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
Art Unit 2665

DJR

Daniel J. Ryman

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600